Environmental Fate & Effects Division
PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY
TRIFLURALIN
Last Update on August 5, 1991
[V] = Validated Study [S] = Supplemental Study [U] = USDA Data

Common Name:TRIFLURALIN
PC Code # : 36101 CAS #:1582-09-8 Caswell #:

Chem. Name :α,α,α-TRIFLUORO-2,6-DINITRO-N,N-DIPROPYL-p-TOLUIDINE

Action Type:Herbicide

Trade Names:TREFLAN
(Formul'tn): WP; EC; PrD
Physical State:

Use Patterns (% Usage) :IN ALFALFA, CONTROL BARNYARDGRASS, CRABGRASS, FOXTAIL;
:TERRESTRIAL NONFOOD;TERR. NONCROP
:

Empirical Form: $C_{13}H_{16}F_3N_3O_4$
Molecular Wgt.: 335.28 Vapor Pressure: 1.10E -4 Torr
Melting Point : °C Boiling Point: °C
Log Kow : 5.07 pKa: @ °C
Henry's : 1.62E -4 Atm. M3/Mol (Measured) 1.62E -4 (calc'd)

Solubility in ...				Comments
Water	0.30E	ppm	@20.0 °C	
Acetone	E	ppm	@ °C	
Acetonitrile	E	ppm	@ °C	
Benzene	E	ppm	@ °C	
Chloroform	E	ppm	@ °C	
Ethanol	E	ppm	@ °C	
Methanol	E	ppm	@ °C	
Toluene	E	ppm	@ °C	
Xylene	E	ppm	@ °C	
	E	ppm	@ °C	
	E	ppm	@ °C	

Hydrolysis (161-1)
[V] pH 5.0:STABLE
[V] pH 7.0:STABLE
[V] pH 9.0:STABLE
[V] pH 3.0:STABLE
[ ] pH :
[ ] pH :

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Photolysis (161-2, -3, -4)
[V] Water:8.9 HOURS IN pH 7 BUFFERED SOLUTION
[ ] :
[ ] :
[ ] :

[V] Soil :41 DAYS ON SANDY LOAM
[S] Air :8-12 HRS IN ARTIF. SUN

Aerobic Soil Metabolism (162-1)
[S] 115 DAYS ON LOAM SOIL
[ ]
[ ]
[ ]
[ ]
[ ]
[ ]

Anaerobic Soil Metabolism (162-2)
[S] 25-29 DAYS ON SANDY LOAM, LOAM, AND CLAY LOAM
[ ]
[ ]
[ ]
[ ]
[ ]
[ ]

Anaerobic Aquatic Metabolism (162-3)
[ ]
[ ]
[ ]
[ ]
[ ]
[ ]
[ ]

Aerobic Aquatic Metabolism (162-4)
[ ]
[ ]
[ ]
[ ]
[ ]
[ ]
[ ]

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Soil Partition Coefficient (Kd) (163-1)
[V] Kads = 18 TO 19 FOR SAND SOIL
[V] Kads = 52.5 TO 56.3 FOR SANDY LOAM SOIL
[V] Kads = 81.8 TO 98.8 FOR LOAM SOIL
[V] Kads = 124.7 TO 155.6 FOR CLAY LOAM SOIL
[ ]
[ ]

Soil Rf Factors (163-1)
[S] IN Sd, SdLm, Si, Lm, AND ClLM
[ ] TREATED WITH 1.1 KG/HA,ELUTED
[ ] WITH 60 CM WATER, >90% STAYED
[ ] IN TOP 0-10 CM SEGMENT.
[S] RELATIVELY IMMOBILE IN FINE
[ ] SAND, SILT LOAM, AND MUCK.

Laboratory Volatility (163-2)
[S] TRIFLURALIN WILL VOLATILIZE; INCREASES IN MOIST CONDITIONS
[ ]

Field Volatility (163-3)
[S]
[ ]

Terrestrial Field Dissipation (164-1)
[V] EC FORMULATION--T1/2 = 149 TO 93 DAYS IN TOP 6 INCHES
[V] GRANULAR FORMULATION--T1/2 = 49 DAYS IN TOP 6 INCHES
[ ]
[ ]
[ ]
[ ]
[ ]
[ ]
[ ]
[ ]

Aquatic Dissipation (164-2)
[ ]
[ ]
[ ]
[ ]
[ ]
[ ]

Forestry Dissipation (164-3)
[ ]
[ ]

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Long-Term Soil Dissipation (164-5)
[ ]
[ ]

Accumulation in Rotational Crops, Confined (165-1)
[S] RESIDUES DID ACCUM. IN ROTATIONAL CROPS GROWN AT 30 DAYS
[ ]

Accumulation in Rotational Crops, Field (165-2)
[ ]
[ ]

Accumulation in Irrigated Crops (165-3)
[ ]
[ ]

Bioaccumulation in Fish (165-4)
[S] BLUEGILL EDIB.2014X;VISC.9586X;WHOLE FISH.5674X
[ ]

Bioaccumulation in Non-Target Organisms (165-5)
[ ]
[ ]

Ground Water Monitoring, Prospective (166-1)
[ ]
[ ]
[ ]
[ ]

Ground Water Monitoring, Small Scale Retrospective (166-2)
[ ]
[ ]
[ ]
[ ]

Ground Water Monitoring, Large Scale Retrospective (166-3)
[ ]
[ ]
[ ]
[ ]

Ground Water Monitoring, Miscellaneous Data (158.75)
[ ] IN A PRESENTLY UNVALIDATED 1987 STUDY, TRIFLURALIN WAS
[ ] FOUND IN CONCS. THAT EITHER EQUALLED OR FELL BELOW THE
[ ] DETECTION LIMIT (.2 PP2) AT ALL TESTED LOC. OF SURF. WATER

Field Runoff (167-1)
[ ]
[ ]
[ ]
[ ]

Surface Water Monitoring (167-2)
[ ]
[ ]
[ ]
[ ]

Spray Drift, Droplet Spectrum (201-1)
[ ]
[ ]
[ ]
[ ]

Spray Drift, Field Evaluation (202-1)
[ ]
[ ]
[ ]
[ ]

Degradation Products

Major degradate: α,α,α-trifluoro-2,6-dinitro-p-toluidine

Anaerobic metabolism:
α,α,α-trifluoro-N,N-dipropyltoluene-3,4,5-triamine
α,α,α-trifluoro-N,N-depropyl-5-nitrotoluene-3,4-diamine
Photodegradates:
α,α,α-trifluoro-2,6-dinitro-n-propyl-p-toluidine
α,α,α-trifluoro-2,6-dinitro-p-toluidine

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Comments

Trifluralin is not likely to reach to gw; it is immobile, with a Kd of around 80, and oct./water coefficient of 118,000.
Trifluralin residues detected in soil aterR 73 weeks ranged from 10.9 to 19.6% of applied radioactivity.
LC50 for rainbow trout = 12-40 ppb (highly toxic)

Koc = 8000 (U)

References: EPA REVIEWS
Writer : PJH/WGM